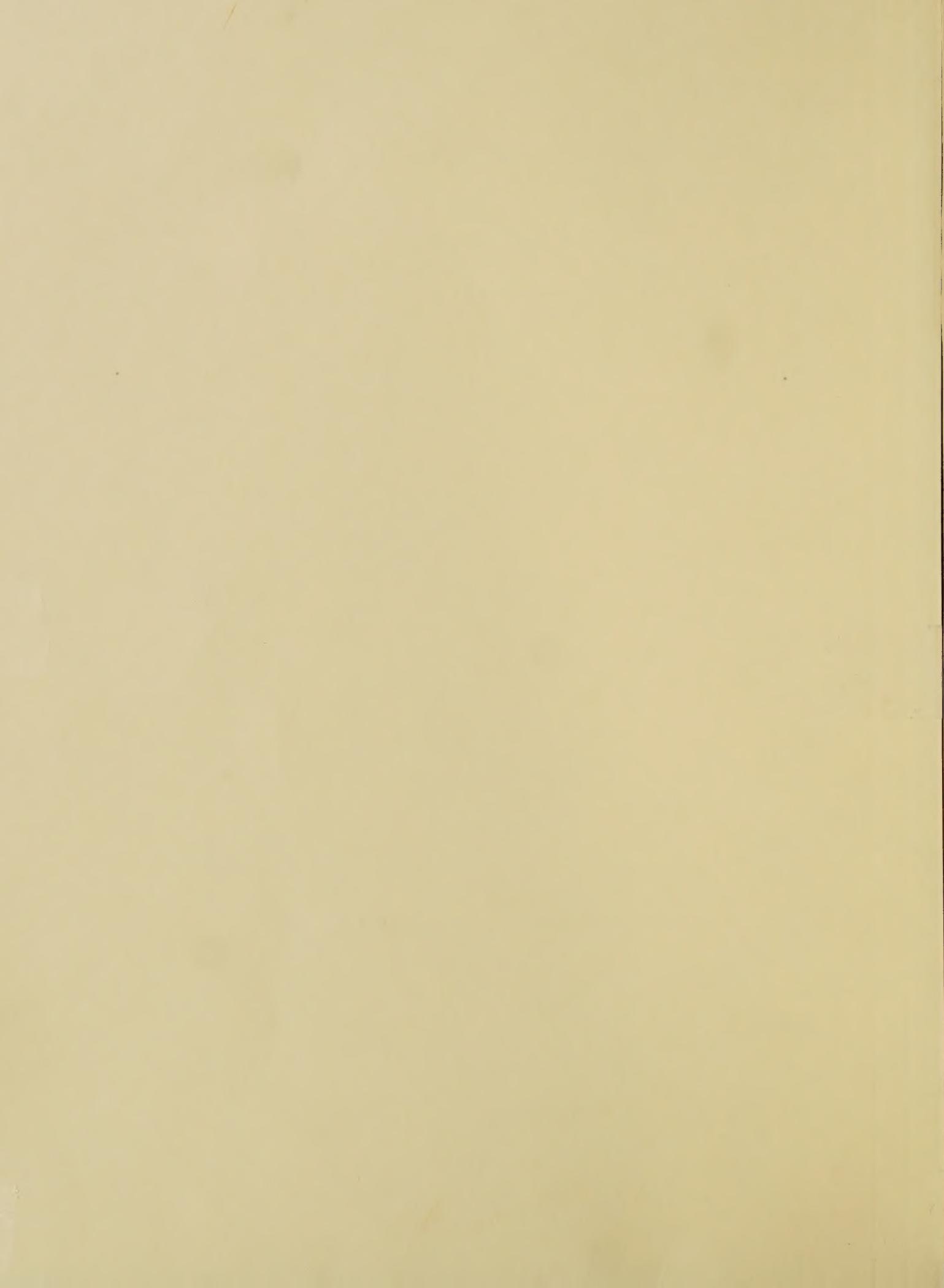


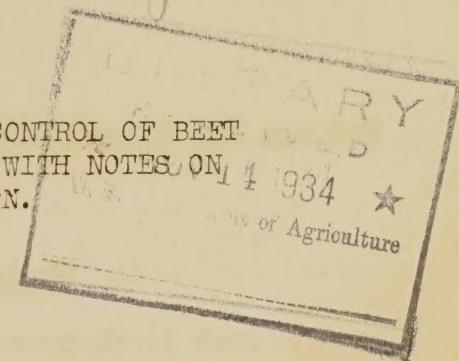
## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



1.9  
EN 86 U.S. D.A. Bur. of Ent + Pl. Quarantine

PRELIMINARY STATEMENT OF A PROGRAM FOR THE CONTROL OF BEET  
LEAFHOPPER AND CURLY TOP OUTBREAKS IN IDAHO WITH NOTES ON 14 1934  
THE PROGRESS MADE TOWARD ITS INAUGURATION.



Section 1

A PROGRAM FOR THE CONTROL OF BEET LEAF-  
HOPPER AND CURLY TOP OUTBREAKS IN  
SOUTHERN IDAHO

1. Statement of the problem
2. Outline of the program
3. Appendix

\*J. C. Chamberlin  
\*R. L. Piemeisel

\*The order of authors' names is alphabetical and implies  
neither seniority nor precedence

October 10, 1934

A PROGRAM FOR THE CONTROL OF BEET LEAFHOPPER AND CURLY TOP OUTBREAKS IN  
SOUTHERN IDAHO.

1. Statement of the Problem

The beet leafhopper or "white fly" is one of the worst scourges affecting the agriculture of southern Idaho, as well as several other western states. It not only causes large periodic losses to the sugar beet industry and the bean industry but actually limits very markedly the areas in which these crops can be successfully grown. Furthermore, its attacks have resulted in the practical elimination of tomato growing as a large scale industry in the State.

To specify: Sugar beet growing, as a successful commercial venture, is nearly restricted to that part of the state east of Twin Falls and Jerome and even in many of these areas is kept in a chronically precarious condition because of recurrent outbreaks of this pest. The serious economic results of such outbreaks can be illustrated by comparing the sugar beet yields for 1933, a good beet year, with 1934, a bad one. In South Central Idaho (comprised of Twin Falls, Jerome, Minidoka, Cassia, Lincoln and Gooding Counties) during the leafhopper-free year of 1933 there were harvested 353,032 tons of beets, representing a gross value to the beet growers alone of nearly two million dollars. The milling of this crop required the operation of the sugar factories at Burley and Twin Falls for a period of nearly four months and incidentally provided employment for more than 500 men during this time. In addition the increased employment required to grow and harvest this crop should not be forgotten. In contrast to these figures, during the current leafhopper outbreak year (1934) it is estimated that the total sugar beet yield will be less than 20,000 tons and none of the factories in the territory considered will be operated at all. The economic loss to the sugar company, the farmers and the community in general is obvious when this more than 90% reduction in yield is considered.

The case is similar in the bean industry for, while no definite figures are available, it is estimated that crop reduction from the beet leafhopper outbreak in 1934 for two representative areas (Twin Falls and Filer) is between 30 and 50% on contract beans and the loss is also undoubtedly significant as far as commercial white beans (Great Northern) are concerned. And as is the case with sugar beets, many desirable bean varieties cannot be successfully grown in the western part of the state because of the attacks of the beet leafhopper.

Cooperative investigations conducted by the U. S. Bureau of Entomology and Plant Quarantine and the U. S. Bureau of Plant Industry have shown conclusively that leafhopper outbreaks originate from lands outside the well-cultivated areas, principally on abandoned farm lands and overgrazed, burned or otherwise deteriorated range lands. The significance of these lands results from the fact that, under the conditions noted, these areas support large weed populations which serve as host plants for the beet leafhopper. These weed hosts are principally several species of mustards and Russian thistle. The mustards germinate in the late fall and the leafhopper feeds and later overwinters upon these plants. In the spring the leafhopper continues its activities upon the mustards and builds up large populations which, concurrently with the death of the host plants in May and June, migrate to other suitable food plants, especially Russian thistle, but also to the susceptible cultivated crops such as sugar beets, beans and tomatoes, as well as certain others of lesser economic importance. During the summer, populations continue to build up on the Russian thistle and in the fall when this plant dies or matures, the leafhoppers again migrate, this time to the overwintering mustard hosts, and are thus ready for the next annual cycle. Since, aside from beets, Russian thistle is practically the only host plant of any importance during the summer, it is clear that if Russian thistle could be eliminated from the major portion of its range, that the magnitude of populations entering hibernation in the fall would be greatly reduced and thus tend to insure against their occurrence in outbreak numbers the following year. It is also clear that anything which would reduce the number of mustards would also tend to insure the same result.

It is a well-established fact that none of the important leafhopper host plants occur in dangerous numbers on the well-farmed (either irrigated or dry-farm) areas. Neither do they occur on range lands where the original vegetation (principally sagebrush together with its associated bunch grasses) has not been destroyed by ill-advised and unsuccessful farming operations, burning or overgrazing and trampling. In brief, if all the lands in the Snake River plains of Idaho were either successfully farmed lands or natural desert range land, the beet leafhopper would be unable to build up economically dangerous populations.

In essence the proposed program for the control of the leafhopper menace (with the probable resulting expansion and stabilization on a sound and successful basis of the beet, bean and tomato industries) consists of the elimination of the leafhopper breeding areas by means of operations and practices designed to ultimately place all the territory comprising the Snake River plains in either of the two categories above noted, i.e., well-farmed tracts or good desert range land.

It should be noted at this time that this program would not only result in tremendous benefits to the sugar beet, bean and similar industries but would greatly benefit the livestock industry as well, through the restoration and conservation of grazing resources and the permanent prevention of future deterioration of range lands with the resulting loss of the more desirable forage plants and their replacement by the dangerous leafhopper weed hosts previously discussed. The program, as proposed, is admittedly on a very large scale. However, it is economically sound and to the ultimate benefits of all the industries involved. The proposals made are in accordance with, and in no way contrary to, the National policies regarding Land Use. The program is on such a scale that it can not be carried out by private enterprise or local agencies. It can, however, be put into operation by the cooperation of various governmental agencies. Feasible means for the accomplishment of the main features of the program can be found without new legislative action, for the legal machinery has already been established in the Taylor Grazing Act and in the Agricultural Adjustment Act.

## 2. Outline of the Program

In order to eliminate the weed hosts of the beet leafhopper and so prevent leafhopper outbreaks, it is proposed:

### On Grazing Lands

To prevent grazing on the worst of the weedy (Russian thistle and mustards) lands in order to give desirable plant species a chance to gain a foothold and thus replace the leafhopper host plants.

To restrict grazing on the less weedy lands (that is, defer grazing to fall or rotate grazing on these lands) in order to facilitate their complete reversion to a desirable range condition.

To assist nature in replacing the weeds (Russian thistle and mustards) on the worst lands by transplanting or seeding of better forage plants. In this connection to use downy brome grass (broncho grass or cheat grass) as a nurse crop, a temporary measure, until perennial forage plants can establish themselves.

To encourage the enforcement of the Idaho State Law prohibiting the setting of fires on range lands so as to prevent the extension of the weed areas. The setting of fires in sagebrush or grass must be regarded as serious as the setting of forest fires and be dealt with in a similar manner.

To regulate the removal of sagebrush for firewood in such a manner as to prevent the extension of the weed areas. (Legislative action necessary). This does not mean the prevention of the use of sagebrush for fuel but rather the cutting of it in such a manner as to permit it to maintain its stand.

To cooperate with agencies that deal with the control of rodents or other pests that are destructive to range lands.

On Intermittently Farmed Lands

To consolidate irrigation districts so that the lands included can be continuously and well farmed.

To transfer the lands not included in the consolidated districts to range land. Such land to be taken care of as stated under "Grazing lands" above.

To oppose opening to farming any lands that cannot be continuously and well farmed.

As Aids to the Above Program

To remove stands of Russian thistle during August, prior to the fall germination of mustards, on such lands not included under the two headings above.

To secure the cooperation of railroad companies, irrigation canal companies and highway districts to assist in the clearing of Russian thistle along their respective right-of-way.

To secure the cooperation of farmers in destroying Russian thistle in stubble and fallow fields sufficiently early in the fall to prevent its seeding or serving as an effective leafhopper host plant. This procedure would be in strict conformance to good farming practice.

To carry on a persistent program of education emphasizing the fact that leafhopper host plants (particularly Russian thistle) must be considered among our most noxious weeds and encouraging the placing of these plants under that category under the provisions of the State Weed Law.

To cooperate closely with the agencies dealing with the enforcement of the State Weed Law.

The above program does not in any way go contrary to well-founded practices in legitimate industries such as farming or stock raising. While it does necessitate some adjustment in stock raising practices, this is already contemplated under the Taylor Grazing Act, on grounds other than the damage to crops by curly top disease.

3. Appendix

(This includes notes on the conferences held concerning the program of control outlined above and states the essence of the opinions expressed and the points brought out for or against the program).

1. Section 3, Paragraph 4, of the Taylor Grazing Act, contains phraseology that may effect essential changes in present grazing practices. Such a possibility can be offset for the time being by the issuance of temporary permits only, but action by Congress is necessary to make a correction that will be final.

2. The various agencies must be made aware of the control program immediately before the grazing districts are fixed if the program is to be given any effective consideration.

3. Just now is a good time to put into effect a grazing control program since the numbers of cattle and sheep have been so greatly reduced (it is estimated in Utah to be one-third of the number of four or five years ago). It will be much more difficult, if not impossible, to put such a program into effect if it is put off until a year of good rainfall comes.

4. One of the changes in grazing practices hoped for and backed by the Wool Growers Association is that the desert range will not be grazed too late in the spring so that there will be dependable fall and winter grazing. A balance should be maintained between desert range (winter) and forest range (summer).

5. One of the most destructive of all grazing practices is that of late spring and summer or year-around grazing on desert range. This type of range is not fitted for such grazing. Livestock can barely be kept alive much less thrive on it, and the harm done to the range is out of all proportion to the good that may accrue to the livestock growers. It is especially the rancher who lives in or near the desert that practices year-around grazing by running his stock over the surrounding desert range.

6. In all the contacts made there was a decided feeling shown against attempts at cultivation of any lands that could not be continuously farmed.

7. It was emphasized that a plot demonstrating what might be done in bringing back the range to good forage conditions would be the most effective method of convincing skeptical stockgrowers.

8. Repeated inquiries were made concerning the introduction of better forage plants, either grasses or desert shrubs.

9. The essence of the statements made by the Livestock Growers with long experience and a long range viewpoint is this: It is lamentable that the range has degraded from a good stand of perennial grasses to the present weedy stage. Some correction should have been made years ago. However, now there is a combination of Russian thistle plus sagebrush as browse that is satisfactory for feed. Some owners prefer not to get sheep started on bunch grass, where available, since it is difficult then to go to the Russian thistle plus sagebrush feed.

There is danger in this attitude which assumes that although degradation of the range took place while there was bunch grass, now with the Russian thistle, plus sagebrush, combination there is something of a fixed condition. As a matter of fact, the deterioration is apt to be accelerated and the Russian thistle plus sagebrush range will soon deteriorate to one of the following: (1) Bare soil with the top soil blown off (a very difficult situation to correct by revegetation); (2) Unpalatable or armed plants (in places this has taken place with such plants as cactus, etc.); (3) Poisonous plants (death camas, larkspur, etc.).

10. Some of the leaders of the Wool Growers Associate state that they don't fear the effect of the Taylor Grazing Act itself (since they helped support it) but they do fear that feeling has swung against present grazing practices to such an extent that the other extreme (prohibition of grazing over large areas and the ruin of the livestock industry) may set in.

11. There is a decided stand on the part of the stock growers against the setting of fires to desert vegetation, either the natural sagebrush stands or the grass and weed cover. It has been suggested that fire guards be established, for instance, that fire lines be plowed along highways.

12. Some fear has been expressed that financial companies, banking houses, etc., would feel that in some way their interests in the livestock industry might be injured if the program were to be put into effect. As a matter of fact, the same companies and banks probably have as great or greater interests on the agricultural side that would definitely be benefited by the program whereas the fears regarding damage to the livestock industry are on the whole unfounded.

13. Heretofore the only interests concerned with the use of the desert range have been livestock growers and those financially affiliated with them. In the many discussions and conferences regarding the program of control it has been developed that entire agricultural sections including the cities in them have fully as great interests at stake in the use of the desert range as have the livestock growers. Some elements of the farming industry are just now beginning to be aware of that fact.

SECTION II

THE RELATION OF THE PRESENT PROGRAM TO OTHER CONTROL WORK  
AND AN OUTLINE OF THE EXPERIMENTAL AND OBSERVATIONAL  
EVIDENCE UPON WHICH ITS SUCCESS DEPENDS

\*J. C. Chamberlin  
\*R. L. Piemeisel

\*The order of authors' names is alphabetical and implies  
neither seniority nor precedence

October 11, 1934

In evaluating the feasibility of the program proposed in Section I, it is of importance to note something of past efforts aimed at the control of the beet leafhopper and curly top and to present, briefly at least, the basic experimental and observational evidence upon which the present program depends.

A solution of the curly top and beet leafhopper problem has already been attacked from various angles, none of which have to date given entirely satisfactory results.

On the plant side, much attention has been given to the breeding of resistant varieties and this work has met with partial success as far as sugar beets and certain bean varieties are concerned, but has totally failed for tomatoes. If the work on resistant varieties is coupled with the present program, less perfection in either will be required.

On the entomological side, progress of an alleviating character has been made in developing methods and criteria for forecasting serious outbreaks of the beet leafhopper and curly top, but even if completely successful, this service could not be construed as a solution to the problem.

Long experience has also demonstrated rather conclusively that direct control measures aimed at the insect vector after it has once infested a susceptible crop are of no value. This results from the fact that the leafhopper does not carry through its complete life cycle on the affected plants but instead annually infests them more or less seriously as a result of migrations or dispersals from breeding areas which in greater part lie outside and often at considerable distance from the cultivated areas. Furthermore, because of the fact that it is the virus of the curly top disease which causes the injury, and not the feeding of the insect itself, an economically dangerous population of leafhoppers is relatively low in comparison with dangerous populations of other insect pests. This makes the standard of effective control impossibly high as far as direct control measures aimed at the insect after its migration into the cultivated areas are concerned.

Control of the insect in the breeding grounds prior to its dispersal, therefore, seems to offer the only feasible method of successfully combating the pest. In some sections, notably California, considerable success has attended a program of direct control applied on the permanent breeding grounds of the species. In this program spraying operations have been conducted in the fall in concentration areas with the idea of reducing the numbers of insects entering the winter and thus lessening the chances of the survivors building up to outbreak numbers for the ensuing growing season. These fall spray practices have since been supplemented by another program which has for its purpose the removal of summer host plants (principally Russian thistle) from the permanent breeding areas prior to the maturation of the last summer brood. This results directly in a practically complete mortality of all leafhoppers except those already in the adult stage and indirectly in a large mortality on the part of the adults as a result of their being forced to less suitable food plants. If carried out at the proper time, as high as 75-80% mortality may be obtained as a result of this type of control.

Where capable of successful application, this program holds great promise of offering a successful means of controlling leafhopper populations and resultant curly top damage. In areas such as Idaho, however, where the outlying or "desert" breeding areas are closely adjacent to the cultivated tracts and are furthermore of great extent, the prospects of control on this basis offer less hope for success. A further disadvantage of this type of control is that it must be repeated each year and does not afford a permanent solution. It still remains true, however, that the only reasonably feasible method of control lies in the possibility of reducing or eliminating leafhopper populations in the permanent breeding grounds.

In the program here proposed, the elimination of the weed hosts is likewise the essential objective. It differs, however, in that it achieves this end through the competition of other more desirable plants rather than through direct methods and furthermore once accomplished, offers a permanent control in place of one which must be repeated each year.

The success of the program does not rest on the substantiation of a theory since the various operations have already been demonstrated to be workable, but is dependent on the extent to which the program can be carried out.

The feasibility of the program and the evidence on which its various phases are based can be stated in summarized form as follows:

1. The beet leafhopper can not build up significant numbers on the original vegetation but does build up enormous populations on annual weeds such as mustards and Russian thistle.

2. This cover of annual weed hosts results from the destruction of the original vegetation by plowing (with subsequent abandonment), excessive grazing, or burning.

3. Well-farmed lands and lands not excessively grazed do not produce weed host stands of any significance.

4. The weed hosts are annuals, chiefly introduced plants, that can not compete successfully with perennial native plants.

5. The weed hosts are eventually replaced by non-hosts such as downy brome grass, native perennial grasses or sagebrush if there is not interference by excessive grazing, intermittent farming or burning.

6. Detailed records of this replacement have been obtained from plots and observations have been made on many large tracts of land which substantiate this. Following are some specific illustrations:

- a. The Blue Gulch Tract, approximately 2000 acres, abandoned 15 years, now with a good sagebrush cover.
- b. Portions of the Deep Creek Tract, abandoned 18 years, now part sagebrush, part downy brome grass.
- c. Large areas in the Kimama-Minidoka section, abandoned 10-12 years, now part sagebrush, part downy brome grass.

d. Plots near Hollister, first Russian thistle in stubble, then mustards (flixweed) and five years after abandonment, a dense stand of downy brome grass.

7. High populations of the beet leafhopper occur on Russian thistle (summer) and mustards (spring) but as these hosts are replaced by non-hosts such as downy brome grass or sagebrush, the numbers become small or none.

8. The drop in leafhopper populations that accompanies the replacement of hosts by non-hosts has been recorded in detail on experimental plots and is further borne out by observations and collections covering a period of years.

9. It is not necessary to eradicate all leafhoppers or all hosts to make the proposed program a success, since both hosts and leafhoppers are present every year, and yet out of nineteen beet-growing seasons, eleven have been successful. The eight seasons that were failures were years of high leafhopper populations. It will be necessary to reduce leafhopper populations only to the numbers that are present in good beet years.

10. A large part of the high populations of leafhoppers can be reduced by a comparatively small reduction of the total host areas if the concentration areas are eliminated. In 1934, 64% of the total leafhopper populations occurred on 30% of the total host area.

11. Up to a certain point there would be an acceleration per season in the reduction of Russian thistle once the highways, railroads and newly abandoned lands were kept clear of the large, well-rounded plants which are the distributors of seed over large adjacent areas.

It follows from the foregoing facts that control of the beet leafhopper can be directly accomplished by restoring the "desert" breeding areas to their original condition. In other words, providing the program can be applied on a sufficiently large scale, we can reduce leafhopper populations to a non-economic figure by reducing the total available food supply by substituting for the weed hosts desirable non-host plant species.

Fortunately the means for the accomplishment of this program already exist in the functions of two already operating branches of the Federal Government. The Taylor Grazing Act which is to be administered by the U. S. Department of the Interior provides the machinery for the proper administration of public range lands, while the Agricultural Adjustment Administration of the U. S. Department of Agriculture, by means of its program for the purchase and restoration of marginal and sub-marginal lands to the public domain, makes possible the administration of practically all the lands constituting leafhopper breeding areas under a coordinated program of range rehabilitation which if effected would accomplish the purpose of the present program.

One of the most important roles which the Bureaus of Entomology and Plant Quarantine and Plant Industry can perform at the present time as far as accomplishing the control of beet leafhopper and curly top outbreaks is concerned, consists therefore in awakening the affected industries to a vivid realization of the part which range management and land planning has to play in eliminating this pest, and in securing, as far as possible, the co-operation of the Federal Agricultural Adjustment Administration, the Taylor Grazing Administration and State Land agencies. Our efforts along this line are adequately summarized in Section III of this report.

SECTION III

NOTES ON CONFERENCES WITH REPRESENTATIVES OF GOVERNMENTAL  
AGENCIES AND VARIOUS INDUSTRIES CONCERNING THE PROGRAM  
FOR THE CONTROL OF BEET LEAFHOPPER AND CURLY TOP OUTBREAKS

\* J. C. Chamberlin  
\* R. L. Piemeisel

\* The order of authors' names is alphabetical and  
implies neither seniority nor precedence

October 16, 1934

1. - INFORMAL CONFERENCE WITH IDAHO STATE LAND COMMISSIONER AT  
BOISE, IDAHO, SEPTEMBER 8, 1934

Mr. Robert Coulter, State Land Commissioner  
Mr. R. H. Tallman, Amalgamated Sugar Company, Twin Falls  
Dr. J. C. Chamberlin, Twin Falls

Mr. Coulter was visited in his office and was told of our proposed plan for eliminating beet leafhopper breeding areas through range management practices and a copy of the attached memorandum was left with him for his consideration. He was also advised of the weed and range survey work we had already accomplished. He immediately recognized the potential value of this work relative to effective land planning and invited us to participate in a meeting of the state land planning committee to be held September 14 in the Governor's office at Boise and there to present our program in more detail. This invitation was accepted. He assured us that we could count on his cooperation and support in securing a serious consideration of the proposed program.

2. -INFORMAL CONFERENCE AT FILER, IDAHO, ABOUT SEPTEMBER 12, 1934

Mr. L. A. Bethel, Associated Seed Growers  
Mr. R. L. Piemeisel  
Dr. J. C. Chamberlin

Mr. Bethel was interested in the control program and offered what assistance he could give in the matter. He discussed the damage to beans for 1934 and gave some estimates for the varieties grown.

3. - CONFERENCE IN GOVERNOR'S OFFICE AT BOISE, IDAHO, SEPTEMBER 14, 1934

Governor C. Ben Ross  
Mr. Robert Coulter, State Land Commissioner of Idaho  
Mr. Dana Parkinson, Assistant Regional Forester, Ogden  
Mr. C. K. McHarg, Inspector (Operations of Forests) State Cooperative  
Fire Protection under Clarke-McNary Act (Coeur d'Alene, Idaho)  
Mr. R. H. Tallman, Amalgamated Sugar Company, Twin Falls, Idaho  
Dr. J. C. Chamberlin, Twin Falls, Idaho  
Mr. R. L. Piemeisel, Twin Falls, Idaho  
Several other men were present, but their names were not obtained.

At this meeting (with some members of the State Land Planning Committee) the consolidation of State and Federal forest lands was primarily discussed. Following the discussion concerning the consol-

idation of State and Federal forest lands, we were given the opportunity of presenting briefly our proposed plan for the control of the beet leafhopper and curly top by the elimination of its breeding grounds through effective range management. The nature and extent of the weed and range survey work already accomplished was also noted. This latter phase of the discussion particularly interested Mr. Parkinson who indicated his strong interest in the proposal and urged us to let him have fuller information as to what we had accomplished. This was promised and a meeting with him at his headquarters in Ogden was accordingly arranged. Mr. Coulter at this meeting verbally appointed J. C. Chamberlin a member of the State Land Planning Committee.

4. - CONFERENCE IN GOVERNOR'S OFFICE AT BOISE, IDAHO, SEPTEMBER 17, 1934

Governor C. Ben Ross

Mr. Douglas Scalley, Utah-Idaho Sugar Company, Salt Lake City

Mr. R. H. Tallman, Amalgamated Sugar Company, Twin Falls

Mr. K. C. Barlow, Vice-President, Idaho Beet Growers Assn., Burley, Idaho

Mr. Marion Estling, Director, Idaho Beet Growers Assn., Shelley, Idaho

Mr. R. L. Piemeisel, Twin Falls, Idaho

Dr. J. C. Chamberlin, Twin Falls, Idaho

At this meeting, which was a continuation of that of September 14, there was a more detailed discussion of the plan for reducing beet leafhopper breeding areas through range control practices and land planning. Governor Ross expressed keen interest in the program and definitely indicated his general approval and willingness to do what he could in the way of bringing it to the attention of the interested federal departments (Interior and Agriculture). Mr. Scalley then proposed that the interested industries submit a written petition to the Governor requesting his cooperation in getting the plan presented to the two Federal departments previously noted. Governor Ross expressed his willingness to give it his favorable attention and promised to submit the petition together with a copy of the tentative proposals for a control program to the Federal departments concerned. A later conference to complete the discussion and present the petition was set for September 24.

5. - INFORMAL CONFERENCE AT SHOSHONE, IDAHO, SEPTEMBER 19, 1934

Mr. D. Sid Smith, President, Idaho Wool Growers Association

Mr. R. L. Piemeisel

Dr. J. C. Chamberlin

Mr. Harold Bergen

Dr. J. C. Chamberlin was invited to address the Annual Meeting of the Idaho Wool Growers Association at Mountain Home, January 7-10, 1935, and to present the proposed leafhopper control program for their consideration.

Mr. Smith approved in general of the program, a copy of which was gone over with him. He showed especial interest in plantings as an aid to the natural processes of recovery of the range and also in experimental plots as demonstrations of how forage conditions might be improved. He admitted that there had been great deterioration of the range and emphasized the injury done by speculative unsuccessful farming and also by fires. He further advised us that he had been instrumental in having a state fire law passed which, if enforced, would be of great assistance in our program.

6. -- CONFERENCE IN GOVERNOR'S OFFICE AT BOISE, IDAHO, SEPTEMBER 24, 1934

Governor C. Ben Ross

Mr. R. H. Tallman, Gen. Ag. Supt., Amalgamated Sugar Company, Twin Falls  
Mr. Joel L. Priest, General Agent, Union Pacific R. R. Company, Boise  
Mr. K. C. Barlow, Vice-President, Idaho Beet Growers Assn., Burley  
Mr. M. E. Willis, Director, Idaho Beet Growers Assn., Rupert  
Mr. J. S. Feldhusen, President, Southern Idaho Bean Growers Assn., Twin Falls  
Dr. Eubanks Carsner, Riverside, California  
Mr. R. L. Piemeisel, Twin Falls, Idaho  
Dr. J. C. Chamberlin, Twin Falls, Idaho

Mr. W. S. Pyper, Secretary of Utah-Idaho Sugar Company, was delayed until after the conference but later participated in a second conference at the Hotel Boise at which all of the above, except Governor Ross, were present. Mr. Douglas Scalley of the Utah-Idaho Sugar Company was unable to be present at this conference, Mr. Pyper taking his place as representative of the Company.

Mr. D. Sid Smith of the Idaho Wool Growers Association had promised that the Wool Growers would be represented at this conference but none attended. Although it was pointed out that the sheep man might possibly oppose some of the ideas proposed, Governor Ross voluntarily advised those present that he would give his approval and push the program regardless of their possible opposition. The letter of petition was therefore put in the form of a final draft and signed by representatives of the Amalgamated Sugar Company, the Utah-Idaho Sugar Company, the Beet Growers Association, the Southern Idaho Bean Growers Association, and the Union Pacific Railroad Company, after which it was delivered to the Governor for his attention. A copy of this letter is given on the next page.

Boise, Idaho  
September 24, 1934.

Governor C. Ben Ross,  
Boise, Idaho.

Dear Sir:

Following our conference with you of the 14th instant we, as representatives of certain industries in Idaho, wish to present in more concrete form some proposals looking to the control of the beet leafhopper. As you will recall, the industries we represent are the Sugar Beet Industry, the Bean Industry and the Union Pacific Railroad Company.

The attached memorandum points out the heavy and recurrent losses, directly to Idaho agriculture, and indirectly to other industries, resulting from the ravages of the beet leafhopper, shows the importance of the control of this pest, and suggests a feasible program to that end. Because of the magnitude of the problem, and the large areas necessary to consider, the active interest and cooperation of both State and Federal Agencies would appear to be necessary to success. In addition to the reasons presented in the memorandum, it should be noted that lands from which the native growth has been removed, and which are not actively farmed, are especially subject to erosion.

This letter and the memorandum attached to it are presented with the hope that they will have your earnest consideration, and will prove to merit your approval in behalf of our State. If approved by you, your influence will be most valuable in bringing the program to the attention of the interested Federal departments which would be chiefly concerned, that is, the Department of the Interior in the administration of the Taylor Grazing Act, and the Department of Agriculture in the purchase and subsequent control of the sub-marginal lands involved.

The information concerning the beet leafhopper, the host plants now available to the pest in Idaho, and the possibilities of control of the pest under the program suggested, was obtained from Dr. J. C. Chamberlin and Mr. R. L. Picmeisel, both of the Department of Agriculture at Twin Falls, Idaho. They are responsible for the investigation work upon which the plan has been based.

Very truly yours,

(Signed) THE AMALGAMATED SUGAR CO.

UTAH-IDAHO SUGAR CO.

By: R. H. Tallman

By: W. S. Pyper, Secy.

SOUTHERN IDAHO BEAN GROWERS ASSN.

IDAHO BEET GROWERS ASSN.

By: J. S. Feldhusen

By: K. C. Barlow

Joel L. Priest

Union Pacific System

7. - CONFERENCE AT OGDEN, UTAH, WITH U. S. FOREST SERVICE MEN, SEPT. 25, 1934.

Mr. R. H. Rutledge, Regional Forester  
Mr. Dana Parkinson, Assistant Regional Forester, Lands and Public Relations, Range Management  
Mr. Ernest Winkler, Assistant Regional Forester, (Traveling at present with Mr. F. R. Carpenter, Director of Grazing in the Department of Interior)  
Mr. A. R. Standing, Inspector of Grazing  
Mr. C. L. Forsling, Director Intermountain Forest and Range Station  
Mr. R. L. Piemeisel, Twin Falls, Idaho  
Dr. J. C. Chamberlin, Twin Falls, Idaho  
Dr. Eubanks Carsner, Riverside, California

At this meeting in the Forest Building at Ogden, Utah, the tentative program of control was presented and discussed. There was general agreement as to the need for the control of grazing and also as to the effectiveness of control of grazing in reducing leafhopper weed hosts. All concerned thought that mutual benefits to both work on curly top and leafhopper as well as to work on forestry problems would be gained by an exchange of information, such as the results of surveys, maps, etc.

Particular interest was shown in the weed host survey map made by the Bureau of Entomology and Bureau of Plant Industry cooperatively. In many respects it was thought that this map was more detailed than any that could be hoped for in surveys preliminary to the final determination of grazing districts.

Points of especial interest that were brought up are included in the appendix to the program under "Notes on Conferences."

8. -- INFORMAL CONFERENCE AT THE OFFICES OF THE DIVISION OF INVESTIGATIONS OF THE U. S. DEPARTMENT OF INTERIOR AT SALT LAKE CITY, UTAH, SEPTEMBER 26, 1934.

Mr. W. B. Burt, Division of Investigations, U. S. Department of Interior, Box 1223, Salt Lake City, Utah  
(Mr. Archie D. Ryan, in charge. Absent at time of our visit).  
Dr. J. C. Chamberlin  
Mr. R. L. Piemeisel

A brief presentation of the plan for elimination of beet leafhopper breeding grounds through range control practices and land planning was made at this conference and it was pointed out that much of the survey work done in connection with this program should be of value to the Department of the Interior especially in connection with the administration of the Taylor Grazing Act. Mr. Burt expressed distinct interest and general approval of the plan and promised his cooperation in bringing it to the attention of the men concerned. He strongly

advocated that we get in personal touch with Mr. F. R. Carpenter, Director of Grazing of the Department of the Interior, at the earliest possible date, and discuss our plan in detail. He promised to keep us advised as far as possible of Mr. Carpenter's itinerary and to help us arrange this meeting.

9. - CONFERENCE WITH REPRESENTATIVES OF UTAH WOOL GROWERS ASSOCIATION  
AT SALT LAKE CITY, UTAH, SEPTEMBER 26, 1934.

Mr. S. M. Jorgensen, President  
Mr. J. A. Hooper, Secretary  
Mr. R. L. Piemeisel  
Dr. J. C. Chamberlin

A copy of the tentative program was shown to these men and a discussion followed in which they expressed a general approval of the plan, especially the aid given to natural processes by plantings. Some fear was expressed as to the extent to which grazing might be controlled and the industry injured but both expressed approval of the Taylor Act itself. That the range has greatly deteriorated and that the original perennial grasses have been continuously reduced was readily admitted but the attitude taken toward the present grazing combination of Russian thistle plus sagebrush was as if this were fairly satisfactory and as if it were a fixed condition and no further deterioration might be expected. The possibility of even an accelerated deterioration was pointed out, since stands of annuals such as Russian thistle are far less stable than stands of perennial grasses. (See also Notes on Conferences).

10. - INFORMAL CONFERENCE AT HOTEL TEMPLE SQUARE IN SALT LAKE CITY,  
SEPTEMBER 27, 1934

Mr. William Peterson, member of the National Land-use Planning Committee on Public Range Policy and Director of Extension Division of Utah Agricultural College, Logan, Utah.  
Dr. Eubanks Carsner, Bureau of Plant Industry, Riverside, California  
Mr. R. L. Piemeisel  
Dr. J. C. Chamberlin

Mr. Peterson, who is closely associated with work on drought relief and water resources in Utah as well as being keenly interested in ranged problems expressed much interest in our proposals for the elimination of beet leafhopper breeding areas as a means of controlling curly top outbreaks. He advised us to get in touch with Mr. P. V. Cardon, Regional Director of the A.A.A. for Utah, Arizona, Nevada and California, and Director of the Experiment Station at Logan, at the earliest date possible, since Mr. Cardon is the regional administrator delegated to secure the necessary data for formulating a definite policy regarding land classification and use. He was well acquainted with the history of the deterioration of the range and expressed an interest in the possible introduction of better forage plants.

11. - CONFERENCE IN GENERAL OFFICE OF THE AMALGAMATED SUGAR COMPANY  
AT OGDEN, UTAH, SEPTEMBER 27, 1934.

Mr. H. A. Benning, General Manager, Amalgamated Sugar Company

Dr. Eubanks Carsner

Mr. R. L. Piemeisel

Dr. J. C. Chamberlin

Mr. Benning expressed his interest in and approval of the beet leafhopper control program and assured us that his company would do all it could to secure public support for it and to cooperative as fully as possible in facilitating its inauguration.

12. - INFORMAL CONFERENCE AT LOGAN, UTAH, OCTOBER 4, 1934.

Mr. P. V. Cardon, Regional Director of the Agricultural Adjustment Administration for Utah, Arizona, Nevada and California and Director of the Experiment Station, Logan, Utah.

\*Dr. G. F. Knowlton, Agricultural Experiment Station, Logan, Utah.

Mr. W. H. White, Bureau of Entomology and Plant Quarantine, Washington, D.C.

Dr. J. C. Chamberlin, Bureau of Entomology and Plant Quarantine, Twin Falls

Dr. W. C. Cock, Bureau of Entomology and Plant Quarantine, Modesto, Calif.

\*Dr. Knowlton came in late and did not participate in the discussion on land planning.

Director Cardon expressed keen interest in our program and stated that he believed the information we have secured as well as the point of view involved were of great importance and should be explicitly brought to the attention of those concerned with land planning and range management. He advised us to contact Mr. Rex E. Willard, Regional Director of the A.A.A. for Oregon, Washington and Idaho, at Pullman, Washington, in this connection at the earliest possible date. He was fully appreciative of the present precarious range land situation and the importance of constructive action along these lines before deterioration had progressed to a stage where recovery would be impossible.

13. - INFORMAL CONFERENCE AT OFFICES OF THE U.S. DEPARTMENT OF INTERIOR AT SALT LAKE CITY, UTAH, OCT. 5, 1934

Mr. Archie D. Ryan, Division of Investigations, Salt Lake City

Dr. J. C. Chamberlin, Twin Falls, Idaho

A recapitulation of our earlier discussion with Mr. Burt was given Mr. Ryan on the occasion of this visit. He expressed substantially the same point of view previously given us by Mr. Burt and assured me of his keen interest in the plan and the desirability of bringing it directly to the attention of Mr. F. R. Carpenter.

## 14. - INFORMAL CONFERENCE AT SALT LAKE CITY, UTAH, OCTOBER 5, 1934

Mr. Douglas Scalley, Utah-Idaho Sugar Company  
 Mr. W. H. White  
 Dr. W. C. Cook  
 Mr. E. W. Davis  
 Dr. J. C. Chamberlin

This was a very informal conference in the course of which Mr. Scalley expressed his conviction that our proposed control program was sound and would be solidly backed by the industries both directly and indirectly affected by curly top. He advised us of his plans to secure the united approval and backing of the canning industry (tomato canneries), the railroad companies and the other sugar companies in backing a similar program to be applied in Utah as well as Idaho.

15. - INFORMAL CONFERENCE, STATE CAPITOL BUILDING AT BOISE, IDAHO  
 OCTOBER 8, 1934

Mr. F. Lee Johnson, State Commissioner, Department of Agriculture, Idaho  
 Dr. J. C. Chamberlin, U. S. Department of Agriculture, Twin Falls, Idaho

Mr. Johnson promised cooperation and expressed distinct interest in the program. He told of being one of the first growers of sugar beets on the Twin Falls tract. On a farm near Murtaugh on "raw" sagebrush land he raised 22 tons per acre in 1906. There was no curly top. Mr. Johnson first noticed Russian thistle in this area between 1903 and 1905 at camp sites for main line canal construction. Russian thistle appeared very early in the Oakley tract, according to his observations.

## 16. - INFORMAL CONFERENCE, STATE CAPITOL BUILDING, BOISE, IDAHO, Oct. 8, 1934

Mr. J. D. Wood, State Planning Consultant, National Resources Board of Idaho, Connected with and reports (in part) to Mr. Rex E. Willard, Head of Department and Division of Farm Management and Agricultural Economics, at Pullman, Washington  
 Dr. J. C. Chamberlin, U. S. Department of Agriculture, Twin Falls, Idaho

Mr. Wood expressed very keen interest in the leafhopper breeding ground control program and invited me to participate in a conference with Mr. Rex E. Willard, Regional Director of the Agricultural Adjustment Administration, and others interested in land planning at the Hotel Davenport at Spokane, Washington, October 15, 1934, in order to present our plan for detailed consideration. The invitation was accepted. He also informed me that the counties of the state would have local land planning committees appointed who would report directly to him, and requested us to meet with him at the time such a committee was organized for Twin Falls County, probably some time this week. A very cordial and understanding cooperative attitude was expressed throughout the discussion.

17. - INFORMAL PARTICIPATION IN THE REGIONAL MEETING OF THE LAND PLANNING BOARD FOR THE STATES OF IDAHO, OREGON, WASHINGTON AND MONTANA AT THE HOTEL DAVENPORT, SPOKANE, WASHINGTON, OCTOBER 15, 1934

Mr. Rex E. Willard, Regional Director A.A.A., Chairmen, Pullman, Wash.  
Major Bessey, Regional Land Planning Committee, Portland, Oregon  
Mr. Ross L. Tiffany, Federal Land Bank  
Mr. R. B. Tooteel, Federal Land Bank and Chief of Land Economics Division, Montana  
Dean Edward C. Johnson, Director of the Experiment Station, Pullman, Wash.  
Professor N. D. Showalter, Chairman Land Use Committee for Washington  
Mr. George F. Cotterill, State Land Planning Consultant, Olympia, Wash.  
Mr. H. A. Henry, Regional Land Planning Consultant, Pullman, Wash.  
Mr. Albert Olsen, Federal Land Bank  
Mr. Keyser, Federal Land Bank and Chairman Washington Planning Committee  
Mr. E. F. Landerholm, Land Planning Consultant for Washington  
Mr. Sinclair Wilson, Chairman Land Planning Committee for Oregon, Northwest Forest Experiment Station, Portland, Oregon  
Mr. A. S. Burrier, Land Planning Consultant, Oregon  
Mr. V. B. Stansbury, State Land Planning Consultant, Oregon  
Dr. E. L. Potter, Corvallis, Oregon  
Dean E. J. Iddings, Director of the Experiment Station, Moscow, Idaho  
Dr. Paul A. Eke, Head of Department of Agricultural Economics, University of Idaho, Moscow, Idaho  
Mr. J. D. Wood, State Planning Consultant, Boise, Idaho  
Mr. H. A. Vogel, Idaho Land Planning Consultant, University of Idaho, Moscow, Idaho  
Mr. D. T. Griffith (Assistant to Mr. Vogel) Moscow, Idaho  
Mr. Dana Parkinson, U. S. Forest Service, Ogden, Utah  
Mr. Myer Wolf, U. S. Forest Service, Montana  
Mr. L. A. Campbell, State Planning Consultant, Montana  
Mr. R. B. Haight, Land Planning Consultant, Montana  
Dr. J. C. Chamberlin, U. S. Bureau of Entomology and Plant Quarantine, Twin Falls, Idaho.

The foregoing is only a partial list of those present at this conference. The attendance varied from a minimum of 21 to a maximum of 28.

Through the courtesy of Mr. Wood and Mr. Willard, I was permitted to take the first fifteen or twenty minutes of this conference for a presentation of the relation between our beet leafhopper control program and weed and range survey work and the question of land planning and land use. Considerable interest was expressed in the ideas presented, especially relative to the survey work done and proposed. Especial gratification was expressed for our calling attention to the availability of the facts accumulated in the progress of our work for use in connection with land planning. Mr. Willard requested that, if possible, he would like to have us finish a sample vegetation and land use cover map together with such additional exhibits as might be pertinent, for display at the next general meeting of the Pacific Northwest Regional Land Planning Conference at Seattle, scheduled to be held December 12, 13, 14, 1934 at the Olympia Hotel in that city. He also advised Mr. Vogel, Dr. Eke and Dean Iddings to confer with me regarding the possibility of their raising some outside funds for

assistance (clerical and drafting) in the preparation of this map. Unfortunately time did not permit me to confer with the men noted but it will be taken up in the near future by correspondence. Mr. Willard also extended an invitation for me or some other representative from the Twin Falls laboratory to be present at this conference. It is believed that this would be desirable.

Perhaps the most interesting topic considered at this conference, relative to our control program, was that on Federal purchases of sub-marginal lands and the formation of cooperative grazing districts in areas where public domain land constitutes a relatively minor fraction of the total area. In this discussion it was brought out that the Department of the Interior has the power to grant as long as ten-year leases to stockmen's associations in the formation of such districts, with the power to insist that such districts be operated along constructive conservation lines. It was also pointed out that unincorporated private lands would not prevent the formation of such grazing districts. Private lands surrounded by, but not included in such a district would have to be fenced (responsibility for fencing in such cases differs in different states.)

The following committee was appointed to consider and report upon the legal questions involved in the setting up of grazing districts in areas where the Taylor Act does not apply.

Mr. R. B. Tetteel, Chairman (Montana)  
 Mr. E. L. Potter, Corvallis (Oregon)  
 \* Mr. C. C. Ladd, (Washington)  
 \*\*Mr. H. A. Vogel, Moscow (Idaho)

\* Not yet selected

\*\* Not confirmed

A strong sentiment was expressed by all representatives at the conference that a strenuous effort should be made to have all present public domain lands (except those of proven agricultural worth) withdrawn from entry in the immediate future, probably by Presidential proclamation.

Major Bessey indicated briefly the topics to be considered at the December meeting in Seattle, as follows:

1. The means of awakening public interest in the planning movement.
2. The location of all individuals and agencies in the promotion of the planning movement.
3. The discussion of progress in land planning to date and the outlining of future developments.
4. The submission of definite proposals for legislation designed to facilitate effective land planning.

It was requested by Mr. Willard that all agencies represented submit to him, in the near future, suggestions regarding advisable proposed legislation. It was also requested that all interested

agencies and organizations submit recommendations by November 5 or earlier, regarding the withdrawal of all public domain lands from entry, until classified or proved of agricultural worth.

Of the nearly two hundred million acres of existing public domain, the Taylor Bill permits the setting up and organization into grazing districts of only eighty million acres. In addition about nineteen million acres may be withdrawn and added to existing national forests. It was felt that some provision should be made for the regulation of the remainder of the public domain, probably by including it under the provisions of the Taylor Act.